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DISCOVERIES AND CURRENT EVENTS *

Algeria: Desert and Moroccan Locusts (1).

Schistocerca gregaria.

On 3 April 1934 swarms from the S. settled at El Ftir (40 km S. S. W. of Touggourt); also at Djanet Temacine and Hassi Daoula (24 km and 36 km respectively W. of Touggourt) and afterwards proceeded towards the N.

On the 5th a swarm of medium size, coming from the E., settled 3 km to the N. of Sidi Rached (Touggourt). It flew on the 6th in a W. N. W. direction.

A swarm of little importance, coming from the E., passed El Arfiane (Touggourt), flying towards the W.

On the 6th some large swarms, coming from the S., settled 5 km S. of Moghrar Foukani Gaidet and 25 km E. of Moghrar Tahtani (Aïn-Sefra) and laid there.

On the 7th a small swarm coming from the S. settled at the observation post, 4 km S. E. of Tamerna (Touggourt), covering an area of 1500 × 200 m.

On the 9th some large red and yellow swarms, coming from the S., settled on Draa Essa; also between the palm-groves of the two Moghrars; at Sbia (5 km S. of Moghrar Tahtani) and at Oued Slam (3 km E. of Moghrar Tahtani); at all of which places they laid.

A large red and yellow swarm from the S. settled at Aouïnet Aïcha (25 km N. of Figuig), and laid.

A swarm of little importance, coming from the S., passed Djamaa (Touggourt) and proceeded towards the W.

A small red and yellow swarm from the S. W. passed Guerrara (600 km N. E. of Ghardaïa), going towards the N.

On the 10th layings were reported over an area of 150 ha at Glat Ghal el Ghar Ouzid Kharaouet Boudjihan (200 km S. W. of Géryville).

A swarm of considerable size coming from the S. W. settled on Noukhila, 12 km S. of the Ksar de Boussemghoum (Géryville), and laid.

On the 11th a small swarm settled at a distance of 6 km E. of the Ksar de Boussemghoum (Géryville).

* Under this and the next heading the countries are arranged in French alphabetical order.

(1) Communication from the Government General of Algeria, Directorate of Economic Services, to the International Institute of Agriculture.

Other reports are as follows:—

Unimportant egg deposits at Khenem Tafarahit, 30 km W. of El Abiod Sidi Cheik (Géryville).

Unimportant hatchings at Oued Djidari and Mahser Tneit ben Bachbeg (70 km S. W. of Ghardaïa).

On the 12th swarms from the S. W. settled at several points between Noukhila and Ksar Boussemghoum (Géryville) and laid.

On the 13th layings were reported at the Oued bel Brahim and the Oued el Mekherreg, 30 km W. of Sfissifa (Aïn-Sefra) over 2 ha; at Debidiba, 15 km S. of Noukhila (Aïn-Sefra) over 1 ha; at Deliat and Mita, 6 km N. E. of Moghrar Fou Kani (Aïn-Sefra) over 2 ha.

On the 15th a swarm of little importance, from the S., settled at Kef Manour, 28 km N. W. of Ourir (Touggourt) and afterwards proceeded towards the N.

Important hatchings were reported at Chaba and Besbassa and in the valley of the Oued Mosk, 35 km S. W. of Ghardaïa.

On the 17th a swarm from the S. settled on the outskirts of Ksour de Chedala Dahranaia and Gueblia (Géryville) and laid.

Some yellow swarms of little importance settled at Aïn Amara and Gara Sidi Mohamed, 10 km S. W. and 15 km S. of the Ksar Brésina (Géryville) and laid.

Layings are reported at Debidiba, Rosfa and Hamra, Ghoun Djaïa Oued el Mellaha and Oued Tounezmer (Aïn-Sefra) over 22 ha.

On the 18th a small swarm, coming from the S. passed Brésina (Géryville) proceeding towards the N.

On the 19th a small swarm passed Sidi Khaled (Ouled Djellal), going towards the N.

A small swarm passed Kef and Guemaa (Ouled Djellal), flying towards the N. W.

A small swarm settled at a distance of 2 km N. of Doucen (Ouled Djellal), laid, and departed towards the N.

A swarm of medium size, coming from the S. W. settled at a distance of 3 km S. of Oum el Khecheb (50 km S. E. of Messad-Djelfa) and departed towards the E.

Unimportant hatchings are notified at Chaabet Aïcha (62 km S. S. E. of Ghardaïa).

A red and yellow swarm, coming from the W. settled at El Margel (40 km S. W. of Ghardaïa). On the 20th it departed, flying towards the E.

On the 21st small egg deposits were reported at Chaabet Nakhla (8 km S. E. Ghardaïa).

Hatchings over an area of 30 ha in the region of Moghrar Foukani and Mohrarg Tahtani el Ghouil (Aïn-Sefra) of layings reported on 15 March.

A pink swarm (2nd generation), coming from the S. flew around between Founassa and Djenieu Bou Rezg (Aïn-Sefra).

A swarm of little importance passed Ksar de Dzira (32 km S. of Djelfa) going towards the S.

On the 22nd a swarm of slight importance, coming from the S., settled at Oued Zerzour (10 km S. of Ksar Arbaouat ad 90 km S. S. E. of Géryville) and laid over an area of 4 ha.

On the 23rd a large swarm coming from the S. W. settled at 6 p. m. near El Haouita (Laghouat) and laid over an area of 25 ha.

On the 24th a yellow swarm of little importance, coming from the W. S. W. settled at 5.30 p. m. at Rass el Aïoun (3.5 km N. of Laghouat).

On the 25th a swarm of medium size, coming from the S., passed Oued Djeddi, going towards the N. W., and Oued Tadmit, going towards the E. (Djelfa).

A swarm of medium size settled at Ksar Selmana (8 km S. E. of Messad-Djelfa) and laid.

On the 27th large red swarms, coming from the S., settled on the borders of the palm-groves of the two Moghrars and Rouïba station (Aïn-Sefra).

On the 30th a swarm of average size coming from the S. E., settled at Ksar el Hania (2 km E. of Messaad-Djelfa) and laid.

Isolated yellow adults at the douars Kef Lakhdar and Tirghane (Aïn-Boucif) have been reported.

Dociostaurus maroccanus.

On 18 April 1934 abundant hatchings at the douar Oued Sefioun (Le Télagh) were reported.

On the 21st hatchings were reported at Souane and Redjemlahmar, douar Yeolna; also at Argoub el Bghar, douar ben Halima (Frenda).

On the 23rd some unimportant hatchings were reported at Heririza, douar Boghzoul (Boghari).

On the 24th some hatchings of little importance were notified at the douars Hounet and Aïoun el Berranis (Saïda).

Copious hatchings were reported at the douar Oued Sefioun (Le Télagh).

Angola: Movements of Locusts (*Nomadacris septemfasciata*) (1).

Luanda District. — On 5 February 1934, small swarms flew in no fixed direction over the entire area of the civil circumscription of Caxito, causing a certain amount of damage to both European and native crops.

In Felix & Company's Libongo holding a fairly extensive swarm ruined important maize fields and cotton plantations.

On the 17th some swarms settled on the Tentativa holding. No serious damage was inflicted owing to the protective measures which were taken.

(1) Communication from Mr. Jorge de Barros Rodrigues Queiroz, Head of the Laboratory of Plant Pathology and Agricultural Entomology, Board of Agricultural and Commercial Services, Luanda, transmitted to the Institute by the Government General of the Colony.

On the 20th a swarm of no great importance invaded the Alice holding belonging to Ricardo Pires & Co., causing some slight damage. Other swarms continued to invade the Tentativa holding but were repelled.

Zaire-Congo District. — On the 2nd a swarm from the north-east settled a distance of 50 km. from Ambrizete. It flew towards Tomboco, having caused no damage worth mentioning.

On the 10th a large swarm passed over the road from Ambrizete to Bembe, in the direction of Tamboco.

On the 26th the civil town of Quelo was invaded by large swarms which caused serious damage to the native maize fields.

Lunda District. — Undated communications: A small swarm flew over the civil circumscription of North Cassai, in a southerly direction.

As regards the civil circumscription of South Cassai, no appearance of locusts has been notified for several months.

Benguela District. — On 3 February large swarms invaded the region of Cambambe, civil post of Catengue, circumscription of Benguela.

On the 6th a large swarm, of a reddish colour, also passed over the area of the civil post of Catengue, in the direction of Cubal da Ganda.

On the 14th large swarms settled on the civil post of Egyto, circumscription of Lobito, ruining important crops, chiefly those of the natives.

On the 18th a swarm passed over the civil post of Quipeio, extending over an area of 5 sq. km. They came from Caala and proceeded in the direction of Luibale.

On the 19th the civil post of Lunge, circumscription of Bailundo, was invaded by large swarms.

On the 23rd an enormous swarm passed over the town of Ganda, civil circumscription of Ganda, coming from the east and flying towards the west.

Undated communications: Large swarms flying in no fixed direction flew over the district of Impulo, civil circumscription of Quilengues.

Malange District. — A large swarm flew over Brito Godins, civil circumscription of Duque de Bragança, on the 7th, direction unknown.

North Quanza District. — Undated communications: In the civil posts of Lucala and Pungo Andongo the appearance of large larval bands continues to be reported.

South Quanza District. — On the 3rd a large swarm coming from the north settled at the civil post of Conde, circumscription of Amboim. After spending the night here it flew away the following day, proceeding in a southerly direction.

Moxico District. — Undated communications: Throughout the interior of the district, and extending as far as the frontier, numerous and extensive larval bands are beginning to appear.

Mossamedes District. — The civil post of Lola and the chief town of the Vila Arriaga circumscription have been invaded by several swarms.

Throughout the entire area of this circumscription numerous areas infested by eggs have been discovered.

Bié District. — Undated communications: The civil posts of Ganda and Nharea, civil circumscription of Andulo, as also the district of Upper Quanza, Bié circumscription, have been invaded by various winged swarms which, in some cases, have caused considerable damage.

Huile District. — No official communication has been received regarding the movements of locusts in this district.

Locust Control.

Luanda District. — In the civil circumscription of Dande various gangs of natives under the supervision of their respective administrative authorities or of a representative of the Agricultural Services, attacked some winged swarms in Icau, driving them from the holding of a European where it was probable that they would lay.

Another gang set out for Ubi, on the boundary between Dande and Dembos, for the purpose of pursuing a larval band.

In the circumscription of Ambriz some 1,600 natives mobilised for the purpurpose of protecting the holdings of " Tabi " and " Uezo ".

In the circumscriptions of Icolo and Bengo the destruction of the hoppers continues.

Benguela District. — In the civil post of Cantengue permanent gangs are being organised for the purpose of combatting the locusts.

Malange District. — In the civil circumscription of Duque de Bragança the campaign for the destruction of laying areas and of larval bands is now finished.

North Quanza District. — In the civil post of Pungo Andongo the campaign begun during the previous month is being carried on with remarkable and most praiseworthy activity. Various winged swarms, many laying areas and enormous larval bands have been destroyed and it is hoped that throughout the month of March the region will be entirely free of locusts.

South Quanza District. — In the civil circumscription of Amboim and at other points various winged swarms have been attacked with flame throwers. The destruction of the larval bands continues and purchase of eggs from the natives has been ordered in the more seriously infested regions.

Mossamedes District. — In the circumscription of Bibala the destruction of adults, hoppers and laying areas continues, 200 kg. of eggs having been collected and burned.

Bié District. — The campaign against various winged swarms is being carried on, a great quantity of insects having been destroyed.

Huila District. — In the civil circumscription of Gambos more than two tons of eggs have been destroyed.

Throughout the district the campaign against the larval bands is beginning.

Egypt: Locusts and Grasshoppers (1).

No *Schistocerca gregaria* has appeared in the country since the last report.

Several localities in the Lybian and Eastern deserts as well as in the Sinai Peninsula have recently been surveyed.

Abundant rainfall left the valleys green with vegetation but no locusts in any stage have been observed.

Outbreaks of grasshoppers *Euprepocnemis plorans, Aiolopus strepens* and *A. affinis* have been reported in May, 1934 from the oases of Kharga and Dakhla and from Lower Egypt. These were treated with the sodium arsenite poisoned bait.

Anacridium aegyptium have appeared in some places in fair numbers. The males have assumed a yellowish colour while the females' ovaries are full of eggs.

Locusta migratoria ph. *danica* is common everywhere in very small numbers, causing no serious damage.

Eritrea: Locusts (2).

No locusts have been reported in the Colony during May 1934.

The service of inspection and advertisement has been reopened in the eastern plain as since March the presence of hoppers of *Schistocerca gregaria* has been reported to the west of Tocar, Anglo-Egyptian Sudan, which is not far from the territory of Eritrea.

Finland: The Onion Smut (3).

I have found in the herbarium of Persoon at Leiden, Netherlands, a specimen of *Tuburcinia cepulae* (Frost) Liro on *Allium cepa.* Persoon himself has written on the label: *Uredo cepae* ? The writing is evidently that of an old man so that it may be supposed that the label was written by Persoon when he was very old, perhaps about 1834.

(1) Communication from the Director of the Entomological Section, Ministry of Agriculture, Egypt, to the International Institute of Agriculture.

(2) Communication from Dr. Luigi Massa, Acting Chief of the Agricultural Bureau of Eritrea, transmitted to the Institute by the Government of the Colony.

(3) Communication from the official correspondent of the Institute, Prof. John Ivar Liro, Director of the Plant Diseases Section, Agricultural Experiment Institute, Helsinki.

As Persoon died in Paris, where he was practising medicine, it is permissible to suppose that the fungus came from Paris or its neighbourhood.

This discovery proves that *T. cepulae* which has hitherto been regarded as a North American species is on the contrary a European species which was introduced a long time ago, perhaps by French emigrants, into North America.

French Morocco: The Desert Locust (*Schistocerca gregaria*) (1).

On 4 April 1934 a swarm of 800 × 800 m, coming from the Chiadma, settled in the Ouled Ben Sbaa (30 km S. of Safi).

On 14th laying was reported in Telmest (50 km S. S. E. of Safi) over 60 hectares.

On 16th a swarm which settled on 4th in the Ouled ben Sbaa flew away towards the N. and settled in the Zaouïa of Sidi Ben Chembour, 25 km S. of Safi.

On 26th the swarm mentioned above settled at Sidi Naji, 10 km S. of Safi.

Mozambique: Movements of Locusts (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) (2).

Nyassa District. — According to telegraphic information received on 12 March 1934, no damage has been inflicted by locusts up to the present on European plantations, and those of the natives have only suffered very slightly. In the region of Amaramba large numbers of *Nomadacris* hoppers have been destroyed by the violent rain.

In the remaining regions of this district the hoppers belong to *Locusta migratoria migratorioides.*

Cabo Delgado District. — During the first week of March the hoppers in Quiterajo, Macondes, Ancuabe and Montepuez were destroyed by means of ditches.

In the second week of March information was received to the effect that the control work in Mumo, Macondes, Ancuabe, Quissanga and Lurio was still carried on. According to notices received in the third week, the destruction of hoppers in Nairoto, Macondes and Tungue continued, while in the last week of the month the most effective mechanical means were used for the same purpose in Mocimbos da Praia, Quissanga, Lurio, Macondes, Montepuez and Pamba.

Tete District. — According to a communication dated 9 March, 1678 bands were destroyed by mechanical means in the region of Matavia and over 3905, in the same region, by means of chemicals. The campaign is carried on without intermission in the circumscription of Chicos. In Zumbo, region of Mugingua, 200 kilograms of hoppers were destroyed.

(1) Communication from the Government General of Algeria, Directorate of Economic Services, to the International Institute of Agriculture.

(2) Communication from Mr. Julio Gardé Alfaro Cardoso, Head of the Entomological Section, Lourenço Marques, transmitted to the Institute by the Director of the Agricultural Services of the Colony.

In Macanga there are various regions which may be regarded as entirely free from locusts. Information was received from the Boroma circumscription that many larval bands had been destroyed, and the campaign is carried on uninterruptedly.

From Metengo, Angonia circumscription, information was received that a large band had been destroyed.

Large numbers of hoppers and eggs were destroyed in the Mutarara circumscription and also in the chief town, in Cherre and in Ancuase. From information received it appears that some of these insects had reached the winged stage and were flying towards the north and north-west.

In the Barué circumscription and chief town and in various villages bands were destroyed by means of various mechanical contrivances and, according to notices received from that region the destruction is still in progress.

Communications dated 28 March were received from Maravia to the effect that the number of hoppers destroyed by chemicals exceeds 4306 bands, while no less than 259 were destroyed by mechanical means. A large swarm coming from Chicos crossed the Zambesi and settled in Antonio.

Two swarms coming from Southern Rhodesia settled in the village of Magoe, circumscription of Chicos and remained there for some time, afterwards flying in a westerly direction. The destruction of hoppers was carried on in this circumscription in the same manner as in Mutarara. In Ankuaze 253 kilograms of eggs were collected, while 91 bands were destroyed. This regions has been thus invaded by large swarms from the Manica and the Sofala territories.

In Macanga many swarms have been destroyed and that region is now completely free. Swarms coming from Nyasaland have reacned the Zombué region. A large number of hoppers very near the winged stage have been destroyed in Barué, on plantations belonging to the natives. Three large swarms passed Mungari and Changara, proceeding towards Chioco, in a westerly direction. In this circumscription also swarms coming from the Manica and Sofala territories appeared.

Quelimane District. — At the beginning of March most of the hoppers near the coast or in the Chire and Zambezi valleys reached the winged stage and began to fly towards the south crossing the Mozambique Company's Territory. Swarms proceeding from other directions also, invaded this region.

In all regions, except that of Pebane, from the middle of February 1934 the number of bands has increased, the quantity of adults that usually proceed towards the north, north-east and north-west being very large.

The campaign has been carried on in all regions with more or less intensity. The heavy rains cause havoc among the hoppers and the insects which have just reached the winged stage, especially in the regions of Marral, Zambezi Valley and on the coast.

Considerable damage has been caused to the palm-groves on the coast and the sugar cane plantations in the south.

Inhambane District. — A communication received referring to the months of January and February gives an account of the destruction of more

than 8,000 kg. of eggs in Quissico and the beginning of the campaign against the bands which have appeared in the area of the village of Maú-ele. In Jangamo and Murrumbene 1,765 and 1,300 kg. of eggs were destroyed respectively.

The principal means adopted for the campaign against the hoppers in most of the regions of this district is that of ditches; in other parts sodium arsenite is used, while in some regions fire is utilised for this purpose. On 26 February an enormous swarm was observed in Inharrime, coming from Zavale : it destroyed cotton plantations covering an area of 40 hectares and afterwards dispersed in the direction of the coast. Various swarms flying aimlessly, that is to say, in no fixed direction, were seen in Morrumbene.

Lourenço Marques District. — In this district the campaign already undertaken by gangs of people throughout the district was continued during the month of March. By the middle of the month about 10,000 bands had been destroyed.

There is no doubt that the work of some of the gangs employed was unsatisfactory. This was due to various causes, but chiefly to the indolence of the natives who, for the greater part, used all possible means to obtain exemption from this work, which involves a certain amount of danger. Hence the majority of bands could not be located owing to lack of information from the natives, and their existence was only ascertained when, having reached the winged stage, the insects invaded the holdings.

It should be noted that, for this reason, the greater number of farmers, and, to some extent, the administrative authorities, believed that the danger arose solely from locusts produced on the holdings or in close proximity to them, and therefore confined their activities to destroying those particular centres.

Furthermore, the lack of arsenic, which seriously impeded the work of some gangs, and the inexperience of others, contributed to the inadequacy of the results obtained.

It must be confessed, however, that if the reality exceeded the estimated invasions, it was due to the fact that swarms coming from the Mozambique Company's Territory and Southern Rhodesia were unexpectedly joined by others from the Transvaal, Swaziland and Zululand. Moreover eggs were deposited in unlocated and widely scattered localities. For all these reasons the number of swarms that infest the district is really surprising.

The majority of the swarms which are concentrating on the banks of the Incomati, Umbeluzi and Maputo Rivers come principally from the spurs of the Sierra de los Libombos and the entire length of the Transvaal and Swaziland frontier.

All the agricultural holdings in the neighbourhood of these rivers have been invaded by new swarms which destroyed the maize, cotton and potato plantations.

The movements of these swarms have for the greater part been circulatory.

The earliest swarms were observed on the 11th, on the banks of the River Incomati, near the Chinhanguanine. They came chiefly from the western forests.

On the 15th a particularly large swarm passed Xinavene, settling in the Incomati Estates. On the 14th various swarms came from the direction of Tenga

towards Matola. At 5 o'clock on the afternoon of the 21st a large swarm from Zululand crossed the frontier and settled at Catuane, rising later and flying towards the north. It afterwards turned back and was observed in this region some days later, settling first in the territory of the Union of South Africa, and later in other regions. On the 22nd a swarm settled at Matianini and on the 27th it proceeded towards Nomahacha. Another swarm coming from the north passed over the same region on the 25th and crossed the frontier towards Swaziland, flying in a southerly direction.

Other swarms have been observed in Umbeluzi, Impamputo, Matolo, Manhica and Moamba, all proceeding in a definite direction.

By the end of the month there were already very few centres of hoppers in this district.

Greece: Hemiptera Injurious to Cereals (1).

Aelia acuminata, *Eurygaster maura* var. *picta* and *Carpocoris baccarum* attacked the crops of 'Mentana' wheat and barley at Evynochori in the district of Missolonghi in April 1934. The indigenous 'Grinia' wheat and the oats were not attacked. The area invaded was 250 'stremmas' or 25 hectares.

The producers were alarmed at the invasion as these Hemiptera caused serious damage to their crops several years ago.

During the first ten days of the month the insects disappeared again after having deposited eggs. Large numbers of eggs were found in the boxes in which specimens of the insects were kept.

There were more *Aelia* than *Eurygaster*, and more *Eurygaster* than *Carpocoris*.

A. acuminata was also reported in the region of Kavassila in the Department of Elis, Peloponnesus, and in a commune of Attica.

The damage caused this year by *Aelia* has been insignificant.

Southern Rhodesia: Locust Invasion 1932-1934 (2).

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Red Locust (*Nomadacris septemfasciata*).

No further egg-laying has been reported during March, the last of the winged swarms of the previous generation having died out before the end of February.

One egg deposit reported about mid-February is stated not to have hatched by the end of March.

A few swarms of hoppers still in the 2nd and 3rd stages were recorded towards the end of the month, but the majority of swarms began to moult to

(1) Communication from the official correspondent of the Institute, Mr. C. A. ISAAKIDES, Scientific Adviser to the Minister of Agriculture, Athens.

(2) Communication from the official correspondent of the Institute, Mr. Rupert W. JACK, F. E. S., Chief Entomologist, Department of Agriculture, Salisbury, Southern Rhodesia.

the adult stage during the second half of March. The result is the presence of a large number of small swarms of winged locusts, which had not moved about to any very great extent nor united into large swarms by the end of the month.

Some very large swarms of more mature fliers have, however, appeared flying from the east in the eastern districts of the Colony. These are undoubtedly swarms which have matured in the low veld of Portuguese East Africa. They have already penetrated the Colony for a considerable distance, apparently as far as the Mazoe and Salisbury districts.

The main direction of movements of these large swarms appears to be westerly (N. W.-S. W.), but movements in other directions have been reported.

Tropical Migratory Locust (*Locusta migratoria migratorioides*).

This species has not been identified nor reported in any stage during March. A few fair sized swarms were reported in February, but mostly small early matured swarms. It is not known whether the swarms united and migrated, or whether they merely dispersed or have died out.

The Campaign.

The operations against the hopper bands have been continued vigorously, but the campaign showed signs of drawing towards a close at the end of the month due to the surviving hoppers obtaining wings.

The outbreak has proved to be of unprecedented extent and severity. Every district of the Colony has been infested, and the intensity of the outbreak has necessitated the provision of supplies considerably in excess of those used last year. Two hundred and twelve (212) tons of arsenite of soda have been distributed together with six thousand (6,000) gallons of cattle dip. Approximately seven thousand (7,000) bucket pumps have been provided, together with fifteen large hand-power barrel sprayers for use on lorries, or on their own wheels. These larger sprayers are reported to have done excellent work everywhere, chiefly due to their mobility and the large poison containers.

Whilst the better populated agricultural areas, especially in the maize belt, have been more or less cleared of hoppers through the combined efforts of the farmers and the Government, there is no doubt that large numbers of hoppers are maturing in the Colony. It is altogether impracticable to achieve anything approaching complete extermination of hoppers in a Colony such as Southern Rhodesia, in the face of an outbreak of the overwhelming nature of that being experienced. The operations have perforce been more or less confined to the defence of crops, a policy which was decided at the commencement of the campaign.

Damage to Crops.

Damage from hoppers to European crops has, on the whole, been slight, but native crops have suffered in certain areas, due to the fatalistic or superstitious attitude adopted by the natives themselves. Damage from invading

winged swarms has been considerable, especially in some localities near the Eastern Border.

The possibility of severe damage to late maize from winged swarms bred in the Colony is not yet over, owing to the comparatively early maturing of the swarms and the lateness of crops in certains areas. If the farmers can defend their crops from fliers during the next few weeks, however, a normal European maize crop is anticipated.

Enemies, etc.

Threadworm has caused the death of a considerable number of hoppers in certain areas.

Three species of parasitic maggots have been recorded from various localities and adults are being bred out. These include two species of *Tachinidae* and one Sarcophagid.

The locust fungus, *Empusa Grylli*, has been responsible for the complete destruction of a fair number of hopper swarms and a few flying swarms in the Lomagundi district.

Red Mites have been taken from large hoppers and fliers but are not regarded as being of any importance.

Outlook.

As far as can be judged at present, the outlook for winter crops is anything but encouraging, as flying swarms seem likely to be very prevalent throughout the dry season.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — By Decree of 26 March 1934 the Agricultural Corporation (' Reichsnährstand ') is authorised to prescribe that from a certain date, and for certain species of cultivated plants, it is forbidden to put on the market seed other than that officially recognised. Authorisation is also allowed to regulate the service and method of recognising the seed. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Mai 1934, Bd. VI, Nr. 2, S. 33-34).

*** By Ministerial Circular No. 11-2-1050, dated 17 April 1934, the charges to be levied for the inspection of citrus fruits in connexion with the San José scale [*Aspidiotus perniciosus*] are fixed as follows: for a gross weight of 25 kg., 50 kg., and 80 kg., 0.04, 0.07 and 0.12 RM respectively. For citrus fruits in bulk 0.0015 RM per kilogramme of net weight. (*Ibid.*, S. 34).

Germany (Bavaria). — By Ministerial Resolution No. 6114 a 16 of 28 February 1934, in anticipation of a heavy development of the apple sucker [*Psylla mali*] it is recommended to the competent authorities to organise a

general compaign against this pest. In a model scheme of the measures to be taken each owner or holder of fruit trees is obliged to treat his apple trees before the opening of the buds with a solution of carbolineum of at least 8 %. In cases of default the treatment will be carried out by others at the expense of the person concerned. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. April 1934, Bd. VI, Nr. 1, S. 3-5).

Germany (Bremen). — By Notification of 19 March 1934 it is made compulsory to notify the competent customs authorities within three days of the arrival of any consignment of plants which must be submitted to sanitary inspection. The customs house will ensure that the inspection is carried out. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. April 1934, Bd. VI, Nr. 1, S. 5-6).

Germany (Oldenburg). — By Notification of 15 January 1934 it is forbidden to plant in one part of the country (Lübeck) bushes of *Berberis* and *Mahonia* at a distance of less than 200 m. from any field planted with cereals. Wild plants of the genera named growing within a radius of 200 m. of fields planted with cereals must be grubbed and destroyed with their roots. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. März 1934, Bd. V, Nr. 9, S. 250).

*** By Notification of 15 March 1934 concerning the control of the potato eelworm [*Heterodera schachtii* f. *solani*] small gardeners in the district of Lübeck are forbidden to plant more than one third of their land with potatoes. The part of the land which has carried potatoes must not be replanted with potatoes during the two following years. In this way a rotation system of at least three years is established. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Mai 1934, Bd. VI, Nr. 2, S. 35-36).

Argentina. — By Ministerial Resolution No. 128 of 28 February 1934, a Commission has been formed for the study of methods by which it will be possible to avoid the harmful effects caused by the ' gorgojo ' and the ' palomita ' in the production of wheat and maize. (*Boletín Oficial de la República Argentina*, Buenos Aires, 27 de marzo de 1934, año XLII, núm. 11.941, pág. 1083).

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Road Board in relation to the prevention of the spread of the noxious weed known as Star Thistle [*Centaurea calcitrapa*] in the District of the said Board. (*Government Gazette of Western Australia*, Perth, March 29, 1934, No. 16, p. 449).

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China. — Notification No. 1340 of the Chief of the Customs Office of Shanghai, dated 13 February 1934, announces that until further orders importation of virus, bacteria, fungi, protozoa and insects dangerous to crops is allowed only by the Customs Office of Shanghai and on condition that each consignment is accompanied by a special permit issued by the Ministry of Industry. (*Deutsches Handels-Archiv*, Berlin, 15. Mai 1934, S. 1761).

Italy. — A Ministerial Circular No. 464 of 15 May 1934, addressed to the Presidents of the Provincial Commissions of the Hunt, provides for the control of animals harmful to live stock and to the restocking with game. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 1º giugno 1934, anno VI, n. 11, pp. 2832-2833).

Malta. — By Government Notification No. 40 of 24 January 1933 for the purpose of preventing the introduction of the San José scale (*Aspidiotus perniciosus*), it is forbidden to import fresh fruits, plants and parts of living plants coming from Hungary, Austria, and Rumania, except tubers, roots and seeds. (*Deutsches Handels-Archiv*, Berlin, 25. April 1934, 88. Jahrg., S. 1452).

*** By Government Notification No. 448 of 24 October 1933 it is forbidden to import vines and cuttings of vines, fresh grapes, and fruits wrapped in vine leaves, semi-dried grapes, must and grape juice containing residues of skins or stalks. (*Ibid.*).

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NOTES

Official Correspondents. — The Government of Argentina has appointed Mr. Juan B. MARCHIONATTO, Head of the Phytopathological Division, Ministry of Agriculture, as official correspondent to the International Institute of Agriculture for questions relating to plant protection.

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